

ABSTRACT

An add-on cartridge structure for electronic devices having a housing formed from upper and lower case sections. The upper case is typically made from plastic and has a conductive layer formed on inside surfaces, while the lower case is made from a metallic material such as aluminum. A wall-like mating member is disposed on an outer edge of the lower case, and mates with the sides of the upper case to form a nearly rectangular cross section housing. The double conductive layer formed by the outside surface of the mating member and the inside surface of the upper case prevents leakage of electromagnetic radiation from the cartridge. Furthermore, high frequency noise is prevented by grounding both the signal ground of the printed circuit board and the frame ground at multiple locations. The conductive layer has a surface break caused by a through-hole through which the printed circuit board plug protrudes to the outside. Such an opening tends to allow electromagnetic noise to leak outside of the casing, but by grounding the signal and frame grounds at locations near the ends and middle of the plug, harmful noise from electromagnetic radiation is reduced.